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THE CHOLINE INFORMATION COUNCIL

Catherine Adams Hutt, Ph.D., R.D., C.F.S.

Widespread deficiency and a diversity of high-demand health benefits are moving choline into the spotlight in 2015. . .

With nine in 10 Americans deficient in choline and the Institute of Medicine (IOM) identifying choline as a *high priority nutrient* in 2014, choline may well represent one of the largest untapped nutritional opportunities of recent times.

Choline is a Major Deficiency Nutrient

In 1998, the IOM recognized choline as an essential nutrient needed by humans, and critical for fetal and proper child development. The adequate intake (AI) recommendation is 550 mg/day for men and 425 mg/day for women; 450 for pregnant and 550 for lactating women.¹

Data from the 2007-2008 NHANES Evaluation showed that only 10% or fewer had usual intakes at or above the AI; only young children typically consumed the AI.²

Liver, eggs, egg yolks and a variety of meats are the richest sources of choline, but their consumption has decreased in recent years. Supplementation of the diet with choline is almost essential in order to ensure adequate consumption for optimal health.

The opportunity exists to promote choline for all ages. The U.S. Food and Drug Administration recently proposed to add choline as a permitted nutrient to be listed voluntarily on the Nutrition Facts panel on food labels. The FDA has mandated choline as an ingredient in infant formula.

Because the IOM has documented choline's functionality in health promotion and disease prevention, robust health claims are possible for this nutrient.

NUTRASOLUTIONS

Catherine Adams Hutt, PhD, Contributing Editor

Choline: The Silent Deficiency

Choline is a specialty nutrient with low consumer awareness. However, due to choline's critical role in health and wellness, that situation is about to change.

FORTIFIED FOODS AND BEVERAGES continue to be a cornerstone of the functional food industry.

According to Information Resources Inc., one in five of the US best-selling new foods and drinks in 2013—also claimed to be enriched with vitamins, minerals or other nutrients. Globally, Euromonitor data also show the number of products with fortified claims grew more than 8% during 2013. This slightly edged growth of



KEYPOINTS

1. Dietary consumption data from 2007 to 2010 show that 92% of US consumers fail to consume an adequate intake for choline.
2. Choline is an essential nutrient, functionally complementary to B vitamins and omega-3 fatty acids.
3. Choline functions in development and maintenance of cognitive function, including development of the memory center in infants and toddlers. It helps prevent non-alcoholic fatty liver disease in adults and contributes to heart health, liver health, sports performance and helps prevent fetal neural tube defects.
4. Manufacturers can easily add choline to foods and beverages as a water-soluble salt, choline chloride, or as choline bitartrate.

Choline is emerging as one of the most important nutrients for food fortification and supplementation. Luckily, it can easily be included in prepared food and beverage formulations.

products with natural/healthy claims (7.8%), organic (6%) and general "better-for-you" claims such as being "low in fat" (4%).

Added essential nutrients have proven to be a strong motivator for the purchase of better-for-you foods. For this reason alone, it's important for food

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New Research Shows Choline is Important to Eye Development and Vision

ESCONDIDO, Calif., July 8, 2015 /PRNewswire/ -- Choline is critical to overall health, cognitive function,

and eye health. In the same way that choline supports healthy development of the brain, it also supports the development of the retina of the eye and impacts vision throughout life.

According to Dr. Steven Zeisel, MD, PhD, and Director of the Nutrition Research Institute, "Early studies show that choline intake of the mother during pregnancy is important for the development of the eye that transmits images to the brain. The current results are based on mice studies, showing that retinal cells form and eyesight is worse if mothers do not get enough choline during pregnancy. The mechanism whereby choline supports eye development and the capacity of the memory center stem cells that form nerve cells in the brain and retina translate to better memory throughout life, more so in later life. Insufficient choline, especially for the developing fetus, is not optimal for the adult and throughout the aging process. More than 90 percent of the U.S. population does not meet the recommended daily intake of 550 mg/day for men and 425 for women. Choline-rich foods are relatively low in choline. For those not sure they are getting enough, supplement the diet with choline. Among health concerns, eye health is ranked fourth among their children. Eye is a high priority health concern globally. "Eye health is another reason to be thinking about choline," says Dr. Zeisel. We can expect big advances in research over the next year.

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